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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

MATZEK, MATTHEW D

ART UNIT	PAPER NUMBER
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1786

NOTIFICATION DATE	DELIVERY MODE
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07/09/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/588,952	Applicant(s) NUN ET AL.	
	Examiner MATTHEW D. MATZEK	Art Unit 1786	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 13-25 is/are pending in the application.
- 4a) Of the above claim(s) 16-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/08, 7/08, 4/07, 12/06, 11/06</u> . | 6) <input type="checkbox"/> Other: _____ |

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Election/Restrictions

1. Claims 16-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the reply filed on 4/27/2010.

2. Applicant's election with traverse of a wallcovering assembly, claims 1-10 and 13-15 in the reply filed on 4/27/2010 is acknowledged. The traversal is on the ground(s) that no adequate reasons and/or examples have been provided to support a conclusion of patentable distinctiveness between identified groups. Applicant also argues that a burden in searching the claims of the two groups has not been shown. This is not found persuasive because the instant application is a national stage entry of PCT/EP04/53577 and restriction is required under 35 U.S.C. 121 and 372 because the groups of inventions do not relate to a single general inventive concept under PCT Rule 13.1.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

3. Claim 8 is objected to because of the following informalities: claim 8 uses the acronym POSS without further explanation. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 6 recites the limitation "elementary particles" in the wallcovering assembly. There is insufficient antecedent basis for this limitation in the claim.
5. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear to Examiner as to the intended structure of claim 13 because the limitation of "the silicon network being bonded...via organic radicals to the layer underneath the top layer" lacks antecedent basis for a "top layer" and where the silicon that the "at least one chain of carbon atoms" is located.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6-10 and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Penth et al. (US 6,309,545 B1).

a. Penth et al. disclose a composite material comprising a support layer and a ceramic material contained on said support layer. The ceramic material is present in or on the support layer and further comprises metal material particles selected from groups III to VII of the periodic system (col. 2; col. 4, lines 24-59). The support layer may comprise polymeric fibers or metal wires (col. 3, lines 61-67) and be woven (col. 3, lines 38-60). The ceramic material is applied to the support layer through the application of metal particles in a suspension of at least one metallic oxide sol, at least metalloid oxide sol or a mixture of these sols. The sols are obtained by hydrolyzing at least one compound, preferably at least one metallic compound, at least one metalloid compound or at least one composition metallic compound with alcohol and/or an acid (col. 5, lines 54-67). One preferable material to be hydrolyzed is a metal or metalloid alcoholate of Si (col. 6, lines 1-8). The hydrolyzing of Si provides a matrix consisting of a silicon network linked together by the Si-O-Si bridges. The sol may further comprise particles of the oxides of Al, Zr, Si, Ti, Ce or Fe ranging in size from 1 nm to 10 microns (col. 6, lines 1-43). This ceramic material serves as the claimed ceramic interlayer.

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b. The hydrolyzing process used to form the ceramic material layer may be repeated to form a second ceramic layer upon the first ceramic layer (col. 7, lines 35-45). This second ceramic layer serves as the claimed ceramic coating. The ceramic coating may further comprise an organic bonding agent that provides the silicon network with organic radicals to be bound to silicon (examples 8 and 9). The particles added to the ceramic layer may be metallic or ceramic (col. 4, lines 24-67), including oxides of Al, Zr, Si, Ti, Ce or Fe ranging in size from 1 to 250 nm. The first ceramic matrix formed from the sol serves as the claimed at least one inorganic adhesive of the ceramic interlayer and bonds the particles to each other as well as the support layer. The thickness of the entire composite article is preferably as thin as 5 microns, requiring the ceramic coating to be thinner than 100 microns (col. 6, lines 54-65). It is reasonable to conclude that the ceramic coating layer of Penth et al. is transparent to electromagnetic radiation having a wavelength in the region of visible light, because the article of Penth et al. anticipates the claimed ceramic coating's composition, structure and thickness. These three attributes determine the transparency of said ceramic coating.

c. Claim 8 is rejected as particles of hydrophobicized silica from Degussa are suspended in the sol (examples 1 and 2). Claim 13 is rejected as the ceramic interlayer may comprise particles of the claimed oxide composition (col. 4, lines 44-55) at a size ranging from 260 nm to 10 microns (col. 4, lines 60-62) and said particles may be surrounded by a silicon network (col. 6, lines 1-7). The hydrolyzing of Si provides a matrix consisting of a silicon network linked together by the Si-O-Si bridges and oxygen atoms to attach the oxide particles to said silicon network. The organic radicals of the

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uppermost layer, the second ceramic layer, allow for the bonding of the silicon network of the interlayer to said second ceramic layer in connecting the network to additional silicon via carbon atoms. Claim 14 is rejected as the TiO₂ is a pigment and may be added to the ceramic interlayer (col. 4, lines 48-50). Claim 15 is rejected in that the composite created by coating with ceramic material can be wound on or off of a roll (col. 2, lines 55-60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Penth et al. (US 6,309,545 B1) as applied to claim 4 above, and further in view of Armbrust et al. WO 01/16241. Examiner has relied upon the English language equivalent of the WO document (US 6,828,381 B1) for examination purposes. Penth et al. fail to provide for two organic radicals bound together via covalent bonds.

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a. Armbrust et al. disclose a sol-gel coating material comprising a sol produced by hydrolysis, condensation and complexing of at least one hydrolysable metal compound a two-bond organic radical and a hydrolysable silane (abstract). Examples of hydrolysable silanes include methyltriethoxysilane, glycidyloxypropyltriethoxysilane (GLYEO) or 3-aminopropyltriethoxysilane (AMEO) (col. 11, lines 5-28). The hydrolysis and condensation may be carried out in the presence of nanoparticles of Al_2O_3 , ZrO_2 and/or TiO_2 (col. 11, lines 57-61). It is preferred to use at least two hydrolysable silanes to produce the resultant sol, in particular methyltriethoxysilane and glycidyloxypropyltriethoxysilane (GLYEO) (col. 13, line 65-col. 14, line 17). The sols of the applied invention are used to form sol-gel coatings on any of a variety of substrates (col. 17, lines 28-46).

b. Penth et al. disclose the claimed invention except that it teaches the use of one hydrolysable organosilane instead of two, Armbrust et al. show that the use of two hydrolysable organosilanes is an equivalent, if not preferred structure known in the art. Therefore, because these hydrolysable organosilanes were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute methyltriethoxysilane and glycidyloxypropyltriethoxysilane for methyltriethoxysilane in the invention of Penth et al. The use of two organosilanes to form the silicon network of the ceramic coating allows for at two organic radicals being bound together via covalent bonds as set forth in the instant specification.

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8. The references cited by the International Search report have been reviewed and considered by Examiner. However at this point in the U.S. case's prosecution, Examiner is of the opinion that the aforementioned references should not be applied in prior art rejections.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571.272.1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/
Examiner, Art Unit 1786